

# Promotion of Meal Premiums in Child-Directed TV Advertising for Children's Fast-food Meals

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## abstract

**BACKGROUND:** Fast-food intake is a modifiable obesity risk factor in early childhood, and child-directed fast-food marketing is common. Per self-regulatory guidelines regarding deception, premiums (ie, incentives or toy giveaways) in child-directed advertisements must be secondary to the advertised product.

**METHODS:** Content analyses were performed of all child-directed fast-food television (TV) advertisements aired on four national US children's TV networks, February 1, 2019, through January 31, 2020, to assess the emphasis of premiums relative to food. We quantified the percent of the audio transcript (word count) and visual airtime (seconds) that included premiums or food and the on-screen size of premiums relative to food in randomly selected frames from each advertisement.

**RESULTS:** There were 28 unique child-directed advertisements for children's fast-food meals in the study year; 27 advertisements were from one restaurant and accounted for nearly all (99.8%) of the total airtime for the 28 advertisements. Premiums were present in 27 of the 28 unique advertisements. On average, premiums (versus food) accounted for 53.0% (vs 16.0%) of words in the audio transcript and 59.2% (vs 54.3%) of the visual airtime per advertisement. In the random subset of frames that includes both premiums and food imagery, imagery of premiums accounted for 9.7% (95% CI: 6.4%–13.0%) of the on-screen area, whereas imagery of food accounted for 5.7% (95% CI: 4.4%–7.0%), an average ratio of 1.9:1 within each frame when excluding one large outlier.

**CONCLUSIONS:** Child-directed fast-food TV advertisements emphasize premiums over food in violation of self-regulatory guidelines, counter to childhood obesity prevention efforts.



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**WHAT'S KNOWN ON THIS SUBJECT:** Fast food is obesogenic yet remains heavily marketed to young children. Self-regulatory guidelines state that premiums must be secondary to advertised products in child-directed marketing to avoid deception. A rigorous examination of fast-food companies' adherence to those guidelines is lacking.

**WHAT THIS STUDY ADDS:** Child-directed fast-food television advertisements are deceptive because premiums are overemphasized relative to the primary product being sold, the fast food itself. These marketing practices violate the industry's own guidelines regarding deception and thus unfairly promote fast food to children.

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Childhood obesity remains endemic in the United States and abroad. Approximately 26% of US children aged 2 to 5 years have overweight or obesity,<sup>1</sup> defined as an age- and sex-adjusted BMI  $\geq$ 85th percentile. Weight status in early childhood tracks into adolescence and adulthood,<sup>2,3</sup> making early childhood a critical time frame to prevent obesity and its related chronic disease sequela.<sup>4</sup>

Fast food is a common, modifiable risk factor for excess weight gain among young children.<sup>5–7</sup> Nearly one-third of US children consume fast food on any given day.<sup>6</sup> Fast-food intake is associated with higher caloric, sugar, total fat, and saturated fat intake among children.<sup>5,8,9</sup> Frequent fast-food intake negatively affects children's dietary quality,<sup>6,8</sup> and greater intake of fast food is cross-sectionally<sup>10</sup> and prospectively<sup>7</sup> associated with excess weight among young children.

Fast food is heavily promoted to children,<sup>11</sup> and children's exposure to television (TV) food advertising shapes their preferences toward advertised foods,<sup>12</sup> which sways parental food purchases.<sup>13</sup> Child-directed fast-food advertising often features premiums, such as toys and games included with the meal, and presenting premiums effectively captures young children's attention.<sup>14</sup> Because young children lack the cognitive ability to understand advertising,<sup>15</sup> industry guidelines have been established to ensure that the use of premiums in child-directed advertisements is not deceptive or unfair.<sup>16</sup> Guidelines are managed through the Children's Advertising Review Unit (CARU) administered by the BBB National Programs (formerly the Better Business Bureau).<sup>16</sup> The BBB National Programs is a nonprofit organization that oversees several national self-regulatory efforts for various industries to ensure fair marketing practices. The program is not affiliated with a government

agency and instead acts as a third party to advise companies and review disputes to support both consumers and businesses. CARU specifically is supported by leading members of the food industry, such as Burger King and McDonald's, and major players within the children's media industry, including Disney and Nickelodeon.<sup>16</sup> CARU guidelines state the following in section II.D.2.(f).i: "Since children have difficulty distinguishing product from premium, advertising that contains a premium message should focus the child's attention primarily on the product and make the premium message clearly secondary."<sup>17</sup> CARU's actions include routine monitoring to assess compliance with marketing guidelines and recommending actions to a company to remedy violations. If a company does not comply, the matter may be referred to a government agency, such as the Federal Trade Commission for enforcement.

We previously observed that child-directed fast-food advertisements placed undue emphasis on premiums.<sup>18</sup> Our objective with this study was to systematically survey the most recent year (2019) of child-directed TV advertising for children's fast-food meals and assess adherence to CARU guidelines regarding the promotion of premiums within food advertisements.

## METHODS

### Data Source

Data were from a third-party monitoring company that tracks advertisement placements (Kantar Media, London, United Kingdom). We included TV advertisements for fast-food restaurants, including non-sit-down restaurants with  $>6$  US locations and excluding pizza restaurants. The sample was drawn from all advertisements aired on national (United States) TV between February 1, 2019, and January 1,

2020. We included advertisements aired on Disney XD, Nickelodeon, Nicktoons, and Cartoon Network, advertisement-supported national networks targeted to and popular among young children.<sup>19,20</sup> In 2016, Disney XD, Nickelodeon, and Cartoon Network had the highest advertising viewership in children's programming on the basis of Nielsen ratings data for all English-language US TV networks.<sup>19</sup> We limited analyses to advertisements aired between 5:00 AM and 8:59 PM to reflect programming hours targeted to younger children. For each advertisement, we collected the restaurant name, product promoted, advertisement length, network aired on, and the date and time of each airing. We defined three quantitative metrics a priori: (1) the percentage of all spoken words in the advertisement audio related to food or premiums (2) the percentage of the total advertisement in which food or premiums were included on screen, and (3) the relative size of food or premiums when they were presented on screen among a random sample of frames within each advertisement. Full details are below. Our approach of quantifying both the auditory and visual components of advertisements aligns with both the dual coding theory of learning<sup>21</sup> and the theory of synergy,<sup>22</sup> which state that learning, and thus retention of presented material, is most effective among children when messaging is from both verbal and nonverbal channels. Our methods are objective yet novel. They align with industry language when comparing the presentation of premiums and food.<sup>23–25</sup> For example, in one case in which CARU deemed a fast-food TV advertisement deceptive in the use premiums,<sup>24</sup> the advertiser countered the charge, in part, by referring to the relative on-screen airtime: "[The advertiser] maintained that the food was prominently displayed throughout the commercial and was displayed on screen almost twice as long as the toy."

## Audio Coding

Two study team members (H.U. and V.C.) created a manual for content coding transcripts; final coding categories included premiums, food, and branding. We included branding because it was a prominent component of advertisements. Premiums were any toy or other products (eg, books) promoted with the meal and any movie, app, or game cross-promoted with the meal. Words related to premiums included specific references to the items (eg, toy characters' names, apps, movie tie-ins) and any words spoken by a premium when presented as an animated character. Food included any mentions of food or drink items or references to eating and drinking those items, and branding included any mention of the restaurant or children's meal. Categories were mutually exclusive. Any phrases not specific to one of those categories were included as an "other" category. Adjectives, adverbs, prepositions, and conjunctions that directly related to a word or phrase classified as premium, food, or branding also counted toward that specific category. For example, "You can discover the adventure of Frozen 2" counted as 8 premium-related words, "with the goodness of milk" was 5 food-related words, and "in every McDonald's Happy Meal" was 5 branding-related words. One study team member (H.U.) and another not involved in the coding manual development (A.E.) then coded each transcript independently using the final manual. Interrater agreement was high for total number of words per transcript (Cohen's  $\kappa$ ,  $\kappa = 0.99$ ) and the number of words for premiums ( $\kappa = 0.97$ ), food ( $\kappa = 0.94$ ), branding ( $\kappa = 0.94$ ), and other ( $\kappa = 0.98$ ). Differences were adjudicated by the two study team members after all coding was complete.

## Visual Coding

Two study team members (H.U. and V.C.) created a coding manual for

quantifying the presence of any premiums, food, or branding presented on screen. Premiums included any toy or other products (eg, books, apps) promoted as a giveaway with the meal and any movie, app, or game cross-promoted with the meal. Anthropomorphized toy premiums, characters from any cross-promoted TV show or movie, props used to play with toy premiums (eg, a racetrack used for toy cars included with the meal) were included as premiums, and a child's use of a touchscreen tablet in advertisements that promoted an app were also included as premiums. Food included any reasonably identifiable food or drink item, including packaged apples and bottled milk. Branding included any reasonably identifiable restaurant or children's meal logos.

One study team member (H.U.) and another study team member not familiar with the coding manual development (A.E.) then each coded the advertisements independently using the final coding manual. Apple's iMovie software was used to quantify the on-screen time presence of premium, food, and branding items, beginning when the image first appeared as a reasonably identifiable depiction and continuing until the image disappeared or was no longer identifiable. All unique appearances per category were summed together. Correlations were high between the two study team members for total airtime per advertisement devoted to premiums (Pearson's correlation,  $r = 0.99$ ), food ( $r = 0.99$ ), and branding ( $r = 0.98$ ), and mean differences in total airtime per each category were 0.1, 0.6, and 0.2 seconds, respectively. Differences were adjudicated after coding was complete.

## Relative On-screen Prominence of Premiums and Food

We also aimed to quantify the relative on-screen prominence of premiums versus food on the basis of size. For

each advertisement, we quantified the total on-screen area (ie, pixels squared) devoted to any premiums or food for a random subset of frames. We randomly selected frames to avoid subjectivity or bias regarding which frames to include. We first demarcated separate frames in each advertisement at 0.5-second intervals (eg, a 30-second advertisement would have 61 frames). We then randomly selected three frames within each advertisement, one per each of these three criteria: a frame that included premiums but not food, a frame that included food but not premiums, and a frame that included both premiums and food. Whether a frame included premiums and/or food was defined by using the results from the video coding, and frames were randomly selected by using a random number generator in Microsoft Excel. One study team member (A.E.) used the image-processing software Fiji (ImageJ, Bethesda, MD; <https://fiji.sc/>) on a Dell Latitude 5590 computer with a screen resolution of  $1366 \times 768$  to demarcate boundaries around any premium or food imagery. Our outcomes were the combined areas devoted to premiums, or separately, food, divided by the total area of the screen (proportion of screen devoted to each category).

## Analyses

We computed the total number of, and total airtime for, all child-directed TV fast-food advertisements during the study year. Analyses were then limited to advertisements for children's fast-food meals specifically. The proportion of all advertisement audio devoted to premiums, food, or branding was computed as the number of words per each category divided by the total number of words in each advertisement transcript; we report values averaged across all advertisements. We computed the proportion of all on-screen advertisement airtime devoted to visual presentations of premiums, food, or branding as the on-screen

airtime per each category divided by the total advertisement airtime; values were averaged across all advertisements. Confidence intervals were not computed because the sample reflected the population of all child-directed advertisements in the study year. We averaged the proportion of the on-screen area devoted to premiums and food across the random sample of frames with 95% confidence intervals because the frames represented a random subset of frames per advertisement. We also computed the ratio of the on-screen area devoted to premiums versus food. Data management and quantitative analyses were completed with the R Language for Statistical Computing, version 3.6.2, and Microsoft Excel, version 2007.

## RESULTS

More than 20 000 child-directed advertisements were aired on the four national children's TV networks from 11 fast-food restaurants (Table 1), summing to 142 hours of total airtime. Advertisements for McDonald's Happy Meals accounted for 99.8% of the airtime for children's fast-food meals. There were 28

**TABLE 2** Mean Minutes of Airtime per Day for Child-Directed TV Advertisements for Children's Fast-food Meals, Stratified by Weekdays and Weekend Days, in 2019

	Weekdays, Mean (SD), min/d	Weekend Days, Mean (SD), min/d
Overall		
5 AM to 9 PM	22.3 (7.3)	20.6 (5.9)
By time of day		
5 AM to 7 AM	1.4 (0.8)	1.3 (0.7)
7 AM to 9 AM	3.3 (1.5)	3.1 (1.3)
9 AM to 11 AM	2.7 (1.4)	2.9 (1.4)
11 AM to 1 PM	2.1 (1.0)	2.0 (0.9)
1 PM to 3 PM	2.9 (1.6)	3.1 (1.3)
3 PM to 5 PM	3.1 (1.5)	2.6 (1.4)
5 PM to 7 PM	3.5 (1.5)	3.1 (1.5)
7 PM to 9 PM	3.2 (1.4)	2.5 (1.1)
By network		
Disney XD	8.0 (4.3)	7.1 (4.0)
Nicktoons	7.0 (5.3)	6.5 (5.1)
Cartoon Network	4.7 (2.9)	3.8 (2.4)
Nickelodeon	2.5 (1.8)	3.2 (2.3)

The study year of 2019 include all ads placed during February 1, 2019, to January 31, 2020, inclusive. Child-directed fast-food advertisements were defined as those aired during 5 AM to 8:59 PM on Disney XD, Nickelodeon, Nicktoons and Cartoon Network TV networks.

unique advertisements for the child-directed fast-food TV advertisements during the study year; 20 advertisements were 30 seconds in length and eight were 15 seconds. Advertisements averaged 22.3 (SD = 7.3) minutes of airtime per weekday and 20.6 (SD = 5.9) minutes per weekend day (Table 2) with no apparent trends by time of day. Among the four channels,

advertisements were most common on Disney XD.

## Audio Coding

Audio transcripts averaged 54.6 words. On average, premiums accounted for 53.0% of all words, food accounted for 16.0%, and branding accounted for 12.8% (Fig 1). Premium-related words accounted for at least 50% of the total audio transcript in 13 (46.4%) of all 28 unique advertisements, and there were no advertisements in which food was mentioned in at least 50% of the total audio transcript. Considering within-advertisement differences, premiums were more commonly mentioned in the audio: on average, the audio transcript favored premiums by a margin of 37.0% or, on average, 20 more words on the basis of the average number of words per ad.

## Visual Coding

Premiums were present in 27 of the 28 advertisements. Twelve of those 27 premiums related to movies, 12 were other toy or book premiums related to licensed characters, and 10 included a tie-in to a mobile app or online game. On average, premiums

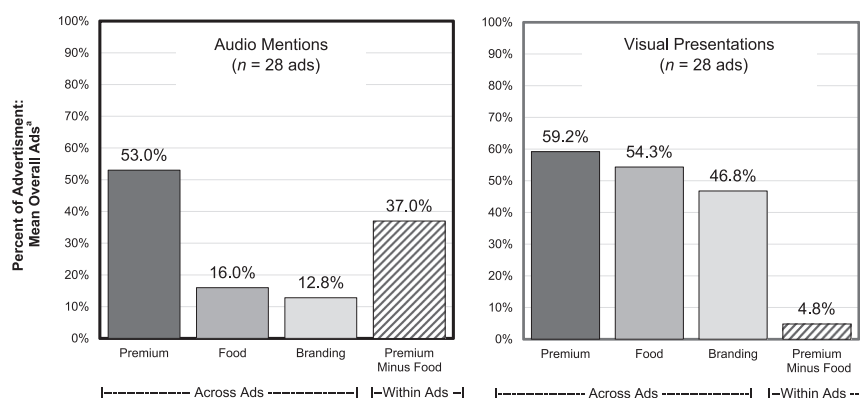
**TABLE 1** Summary of Child-Directed TV Advertisements for Fast Food Aired on National (United States) TV by Restaurant in 2019

Restaurant	Total Ads Aired, <i>n</i>	Total Airtime, min
Arby's	2	1.0
Burger King	1	0.3
Chick-Fil-A	143	71.0
Chipotle Mexican Grill	192	53.0
Jimmy John's Gourmet Sandwich Shop	1220	361.0
KFC	1	0.3
McDonald's		
Happy Meal kid's meal <sup>a</sup>	18 488	7761.8
Other items	5	2.3
Sonic		
Wacky Pack kid's meal <sup>a</sup>	33	16.5
Other items	253	63.3
Subway	633	186.8
Taco Bell	4	1.0
Wendy's	5	1.3
Total overall	20 980	8519.0

The study year of 2019 included all ads placed from February 1, 2019, to January 31, 2020, inclusive. Child-directed advertisements were defined as those aired from 5 AM to 8:59 PM on Disney XD, Nickelodeon, Nicktoons, and Cartoon Network TV networks.

<sup>a</sup> Children's fast-food meal.





**FIGURE 1**

Proportion of each advertisement devoted to audio mentions and visual presentations of premiums, food, and branding for child-directed TV advertisements for children's fast-food meals in 2019. The proportion of total advertisement for audio mentions was defined as the number of words spoken per each category divided by the total number of words spoken in the advertisement. The proportion of total advertisement time for visual presentations was defined as on-screen time per each category divided by total advertisement time; time was measured in tenths of seconds. The study year of 2019 includes all ads placed from February 1, 2019, to January 31, 2020, inclusive. Child-directed advertisements were defined as those aired from 5 AM to 8:59 PM on Disney XD, Nickelodeon, Nicktoons, and Cartoon Network TV networks. <sup>a</sup> Confidence intervals are not presented because values reflect all ad airings over the study year; data are not a sample.

were on screen for 59.2% of the total airtime of each advertisement, food was on screen for 54.3%, and branding was on screen for 46.8% of the total airtime (Fig 1). Premiums were presented on screen for >50% of the total airtime in 18 (64.3%) of all 28 unique advertisements, and food was presented on screen for >50% of the total airtime for 13 (46.4%) of all 28 unique advertisements. Considering within-advertisement differences, premiums were presented on screen more often than food. On average, the on-screen airtime was greater for premiums than food by a margin of 4.8% (absolute difference), translating into 1.44 seconds more devoted to premiums than food for a 30-second advertisement.

### Relative On-screen Prominence of Premiums and Food

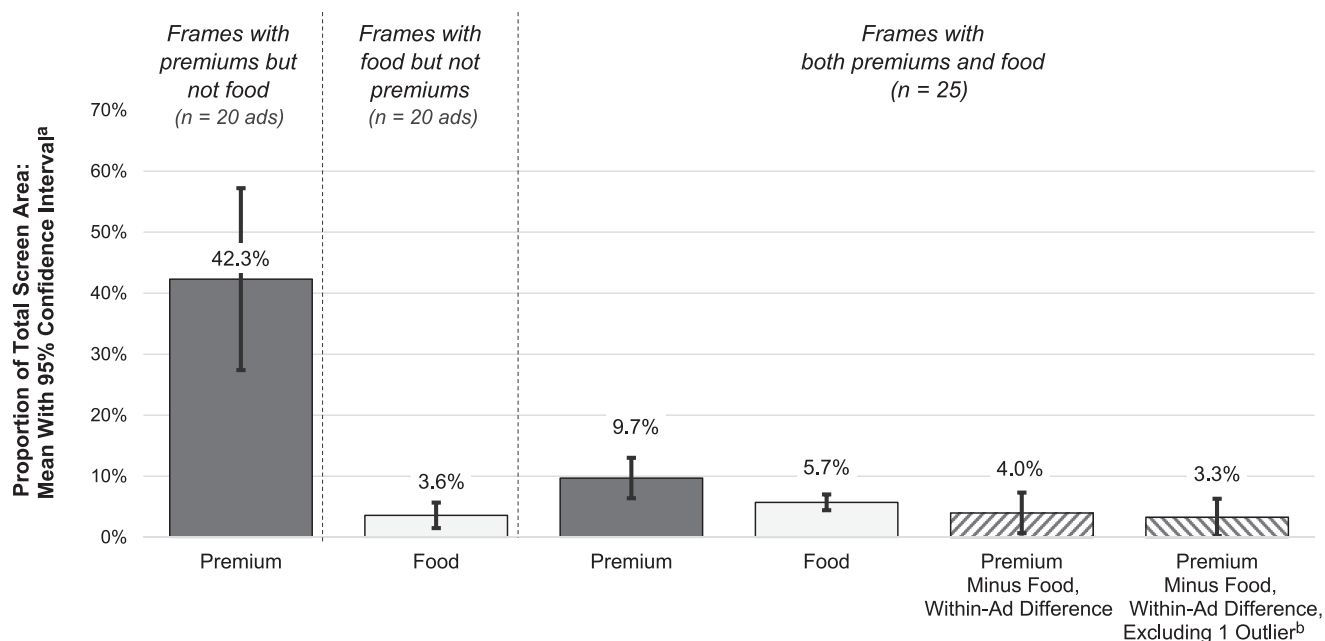
Twenty advertisements included at least one frame presenting a premium without food. In the random sample of those frames ( $n = 20$ , one per advertisement), on average, premiums accounted for 42.3% (95% CI: 27.4%–57.2%) of the total on-screen area (Fig 2). Twenty

advertisements included at least one frame presenting food without a premium. In the random sample of those frames ( $n = 20$ , one per advertisement), on average, food accounted for 3.6% (95% CI: 1.5%–5.7%) of the total on-screen area. Twenty-five advertisements had at least one frame presenting both a premium and food. In the random sample of those frames ( $n = 25$ , one per advertisement), on average, premiums accounted for 9.7% (95% CI: 6.4%–13.0%) and food 5.7% (4.4%–7.0%) of the total on-screen area. Additionally, within each of those advertisements' frames, the mean ratio of the on-screen area for premiums versus food was 4.1:1, which was attenuated to 1.9:1 (95% CI: 0.8:1–2.9:1) when excluding one outlying value with a ratio of 58:1. Also in those frames, the area devoted to premiums was greater than that for food by an absolute difference of 4.0% (95% CI: 0.7%–7.3%), slightly attenuated to 3.3% (95% CI: 0.2%–6.3%) when excluding that same outlier. Supplemental Figure 3 includes a screenshot from one advertisement depicting premiums and food together on screen.

## DISCUSSION

In the child-directed TV advertisements for children's fast-food meals aired during the study year, the presentation of premiums consistently exceeded the presentation of food via three metrics of the audio and video components. CARU guidelines state the following in section II.D.2.(f).i: "Since children have difficulty distinguishing product from premium, advertising that contains a premium message should focus the child's attention primarily on the product and make the premium message clearly secondary."<sup>17</sup> Thus, child-directed TV fast-food advertisements in the study year failed to adhere to CARU guidelines regarding deception on the basis of our novel, objective measures that revealed premiums were more prominent than food in the audio and video.

Examining the use of premiums to promote children's fast-food meals is critically important; young children prefer fast-food meals that include premiums, independent of the meal content, and perceive meals with premiums as better tasting.<sup>26,27</sup> Premiums within advertisements effectively capture children's attention,<sup>14</sup> and exposure to child-directed fast-food TV advertisements has been associated with subsequent intake of items from those restaurants among young children.<sup>28</sup> Guidelines established by CARU,<sup>25</sup> the organization that self-monitors industry practices regarding child-directed marketing, clearly state that premiums within child-directed advertisements must be secondary to the advertised product to avoid undue influence. Industry self-regulation, including self-regulation within the food industry, has historically been at odds with public health,<sup>29</sup> and our findings support that self-regulation failed in 2019 regarding the deceptive use of premiums in child-directed fast-food advertising. However, our findings



**FIGURE 2**

The on-screen prominence of food and premium visuals among a random sample of frames from child-directed TV advertisements for children's fast-food meals in 2019. On-screen prominence was defined as the proportion of the total screen area devoted to premiums or food for each randomly selected frame. One random frame per advertisement was selected per each condition; the three conditions were (1) a frame with premiums but not with food, (2) a frame with food but not with premiums, and (3) a frame with both food and premiums. Not all advertisements had frames that met the criteria of each condition. The study year of 2019 includes all ads placed from February 1, 2019, to January 31, 2020, inclusive. Child-directed advertisements were defined as those aired from 5 AM to 8:59 PM on Disney XD, Nickelodeon, Nicktoons, and Cartoon Network TV networks. <sup>a</sup> Confidence intervals are presented because values are from a random sample of eligible frames per advertisement. <sup>b</sup> The outlying value was a frame in which the ratio of the on-screen area for premiums to food was 58:1.

were primarily driven by one restaurant (McDonald's) Other restaurants that provided children's fast-food meals during the study period did not even participate in child-directed marketing (except for one advertisement from one restaurant, Sonic). Thus, stricter monitoring and enforcement of CARU guidelines by the Federal Trade Commission is needed to enforce the industry's self-regulatory guidelines. In the absence of such enforcement, self-regulation is ineffective, and statutory actions regulating this marketing would ultimately best support child health.<sup>30</sup>

Our findings align with past data revealing heavy investment by McDonald's to target children. In 2016, the year for which we have the most recently available public data, children aged 2 to 5 years old viewed 139.0 TV advertisements for Happy

Meals, 131.7 (94.7%) of which aired on child-directed TV networks.<sup>11</sup> Happy Meals ranked first as the most viewed brand advertised to young children of all fast food, pizza, snack, and drink brands advertised on children's TV in 2016.<sup>11</sup> Items from McDonald's are commonly consumed by children; in 2016, 73% of 800 parents of 2 to 11-year-olds recruited nationally reported they purchased something for their child from McDonald's in the past week. Sixty-one percent of 3 to 5-year-olds usually ate items from McDonald's among 624 children surveyed in the Northeast United States in 2014–2015.<sup>28</sup> Thus, our findings may have considerable public health implications, given the reach and popularity of the restaurant.

The Children's Food and Beverage Advertising Initiative (CFBAI) is the major self-regulatory program in the

United States specific to child-directed food marketing; CFBAI guidelines cover what foods are considered "healthy" and thus acceptable to advertise to children. A considerable line of research has highlighted the subpar nutritional criteria used by CFBAI.<sup>11,31</sup> Our work extends the understanding of the limits in self-regulation as related to child-directed food marketing by revealing the potentially deceptive content within child-directed fast-food advertisements based on industry regulations for child-directed marketing more broadly.

Our study was a complete and rigorous examination of child-directed TV advertisements for children's fast-food meals aired on US TV for one year. We quantitatively analyzed each advertisement in its entirety, including audio and visual components and on-screen

prominence. Including both audio and visual components is important because pairing verbal and nonverbal components can increase a child's retention of the presented material.<sup>21,22</sup> We included independent coders, and interrater agreement was high. Audio transcript coding was focused on total word count and not semantics to be objective. There are also several limitations. We included 4 prominent children's TV networks but did not include other networks by which children may have been exposed to fast-food advertisements, including networks that children co-view with an adult. Additional research is needed to validate our objective

measures against children's attention to and retention of advertisement content and to consider additional metrics, including temporal placement within the advertisement. We did not include online media (eg, Web sites, apps). Children's use of online media is increasingly common,<sup>32</sup> and McDonald's has a prominent online presence.<sup>11</sup> Adherence to CARU guidelines within digital marketing thus needs to be examined.

## CONCLUSIONS

Child-directed TV advertisements for children's fast-food meals aired in 2019 were deceptive per CARU

guidelines per our objective metrics, and stronger oversight of child-directed marketing in the United States from an independent review body or regulatory agency is indicated. Those actions will support childhood obesity prevention efforts by reducing the appeal of advertisements promoting children's fast-food meals via the unfair and deceptive use of meal premiums.

## ABBREVIATIONS

CARU: Children's Advertising Review Unit

CFBAI: Children's Food and Beverage Advertising Initiative

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